

K. H. LOOMIS.

Improvement in Balance-Valves.

No. 114,162.

Patented April 25, 1871.

Fig. 1

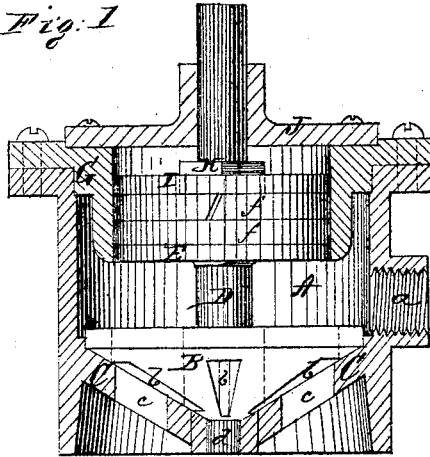
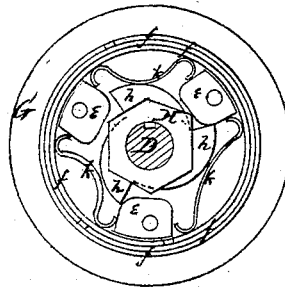


Fig. 2



Witnesses
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UNITED STATES PATENT OFFICE.

KELLOGG H. LOOMIS, OF NEW YORK, N. Y., ASSIGNOR TO JAMES M. BOYD,
OF SAME PLACE.

IMPROVEMENT IN BALANCE-VALVES.

Specification forming part of Letters Patent No. **114,162**, dated April 25, 1871; antedated April 19, 1871.

To all whom it may concern:

Be it known that I, KELLOGG H. LOOMIS, of New York, in the county of New York, and in the State of New York, have invented certain new and useful Improvements in Balance-Valves for Steam-Engines; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a balance-valve for steam-engines, as will be hereinafter fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a vertical section of the entire valve, and Fig. 2 is a plan view of the piston.

A represents a steam-chest, and *a* the induction port or passage thereof. B is the valve, conical in shape; and C is the valve-seat, of corresponding form.

The valve B has a series of openings, *b b*, extending through vertically or parallel to its axis; and the seat C has a series of corresponding openings, *c c*. The said ports are opened and closed by a reciprocating motion of the valve or seat.

D represents the valve stem or spindle, which passes through the center of the valve B and into the valve-seat C, and forms a guide or support, *d*, for the valve. On the stem D is secured a piston, E, placed within the bonnet or cover G, which covers the steam-chest A. Upon the upper surface of the piston, near the outer edge, are formed lugs *e e*, between which are located springs *k k*, for the setting out or tightening the pack *f* of the piston.

On the valve-stem D is located a collar, which

is fitted so as to turn around, said collar being provided with cams or lugs *h h*, which bear against the springs *k k*, so that by moving the collar to the right the springs will be forced outward, causing the packing to be tight. On top of this collar is a jam-nut, H, which, by turning down, bears against the collar, thereby keeping it at any desired position.

It will be seen that by the steam lying within the steam-chest A between the valve B and the piston E, the steam-pressure is equalized, thereby relieving the valve and valve-seat of a large amount of friction that would otherwise occur.

On top of the lugs *e e* is secured a ring, I, which holds the springs in place, preventing them from springing out.

On top of the bonnet G is secured an extra bonnet or cover, J, which can readily be removed, so as to gain access to the piston, without breaking the steam-joints.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The loose springs *k k*, placed between the ears *e e* on the piston, for the purpose of pressing outward the packing-rings *f f* by means of the cams *h h*, which are operated from the center of the piston, and held in position by the jam-nut H, substantially as herein set forth.

2. The combination of the conical valve B, stem D, piston E, bonnet G, and cap J, constructed and arranged substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 3d day of August, 1870.

KELLOGG H. LOOMIS.

Witnesses:

C. L. EVERT,
A. N. MARR.